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ABSTRACT

This paper reviews the literature on autism in general and examines in some detail the research on the Lovaas method of early intervention. The general review is divided into subsections which cover the following topics: historical perspectives, definition of autism, causes of autism, characteristics of people with autism, diagnostic criteria, types of autism, currently agreed upon facts, families with an autistic child, infants with autism, what to do after diagnosis, guidelines for evaluating treatment programs, social interaction for people with autism, and early identification. The second half of the paper focuses on the methodology developed by Ivar Lovaas and implemented at the Lovaas Institute for Early Intervention. This intensive behavioral intervention involves one-to-one therapy by a trained therapist for 5-7 hours per day, 5-7 days per week. The Institute claims that with early intervention, sizable minorities of children with autism and pervasive developmental disorders have been able to achieve normal educational and intellectual functioning by 7 years of age and all children improve somewhat. The Lovaas therapy is reviewed in subsections on: the Lovaas Institute for Early Intervention, results of a Lovaas' research experiment, evaluation criteria for alternative treatments, and concerns about making this labor-intensive therapy more widely available. Attached is a list of eight organizational resources. (Contains 24 references.) (DB)

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Autism. An Overview and Investigation Into the Lovaas Intervention Technique

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A Research Paper Submitted to the Faculty of the Department of Special Education at Chicago State University in Partial Fulfillment of the Degree of Master of Science

May, 1999

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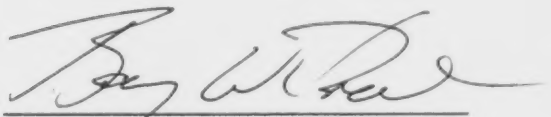

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Barry W. Birnbaum, Ed.D. ***Date***

Abstract

The developmental disability of autism was researched and reviewed. It has been reported that autism affects an estimated two to 10 of every 10,000 people, and strikes males four times as often as females. Autism is not a disease, but rather a developmental disorder of brain function. There is no known cause or cure. Autism typically never goes away, and impacts every aspect of a child (as well as an adult) that has been diagnosed with the disorder. Dr. Ivar Lovaas, of UCLA, has developed an intensive early intervention treatment method known as Lovaas, which is thoroughly discussed. There is research to support Lovaas, as well as to object to it. The field of autism is constantly being studied and reviewed by scientists and researchers, and it is hoped that these future examinations into the mindboggeling world of autism bring a better understand and grasp of the hopes for the future of people who are autistic.

Introduction

The syndrome of autism has been the object of much research since Leo Kanner publishes a description of early infantile autism in 1943 (Matson, Benavidez, Compton, Paclawskyj, and Baglio, 1996). Autism impacts the lives of an estimated 1 in 500 individuals (Gillberg, 1997), and strikes males about four times as often as females (National Institute of Neurological Disorders and Stroke, 1999). Autism is a developmental disability, not a disease. Individuals with autism vary a great deal in severity. Children and youth with autism exhibit unique, albeit variable, characteristics that often set them apart from their peers with other special needs. For example, some individuals with autism reveal highly developed splinter skills and unique abilities; the nature and meaning of which are debated fervidly. Further, intense debates over the causes of autism, intervention choices, and educational programming features also have been a consistent element of autism's history (Simpson, 1995).

According to Simpson (1995), one of the most well-defined characteristics of program and interventions for students with autism has been the never-ending search for agents or methods, proven or not, that purportedly restore a child with autism to normalcy, or that accelerate development of skills, knowledge, and overall progress. An array of interventions is included among these purported treatments, such as the Lovaas Early Identification Treatment Method. Dr. Ivar Lovaas developed this intervention program which is based on thirty years of experience. According to the Lovaas Institute for Early Identification (1999), this is a comprehensive program aimed at enhancing the language, social/play, pre-academic, and independent living skills of young children so that they

may take better advantage of opportunities in their communities and may require less professional attention as they grow older.

As to be expected with all treatments and intervention programs, there are both supporters as well as critics of the Lovaas method. It is important to recognize that a willingness to believe in controversial therapies is normal and not limited to the field of autism (Simpson, 1995). Families, advocates, public agencies, and legislators must come together to develop a framework that encourages the emergence of innovative strategies in best practices. However, there must be assurances that a long-term, proactive plan is carefully designed to study new methodologies. Only through candid discussion, longitudinal analysis, and opportunities for collaboration among all sectors of the early intervention community can an atmosphere of trust become the cornerstone in a climate of clinical indeterminacy (Feinberg and Beyer, 1998).

Method

The writers first step in searching for relevant information for this paper was accessing specific databases provided by the instructor, Barry W. Birnbaum, Ed.D. through the Webliography. The writer was able to find a wealth of information through the web cites posted on-line via the writer's class. The writer did try each site at least once, and was overwhelmed with the amount of resources found. The writer accessed certain sites regularly in order to pick and narrow the topic (mainly ERIC, Council for Exceptional Children, Illinet Online, and). Once gaining access to these sites, the writer was also given the opportunity to visit other sites provided as "links". Also, the writer was able to search the Internet through the search option on the writer's Internet carrier (AOL). Through using the search command, the writer was provided with copious sources, which included other web sites, online journal, and other sources. The writer also visited numerous college campuses in the Chicagoland area, and searched their databases for any and all information on autism, as well as Dr. Ivar Lovaas.

The writer organized the research into specific parts, and sectioned it off as such. The writer then divided all of the journal articles and information from the Internet into subcategories, and began reading to see what information was relevant to what the writer was trying to portray through the paper. As the writer continued to read, the writer highlighted certain passages in the articles, and disposed of those that were of no use. When the writer completed the readings, the writer first began with an outline, which lead into a draft, which eventually became the paper you have on front of yourself right now.

Review of Literature

Historical Perspectives

The mysterious disability of autism was first described and named by Leo Kanner in 1944 (Harvard Mental Health Letter, 1997, part 1). The syndrome of autism has been the object of much research interest since Kanner published a description of early infantile autism in 1943 (Matson, Benavidez, Compton, Paclawskyj, and Baglio, 1996). Matson et al. report that subsequent research of autism was based primarily on psychoanalytic theory, which was prevelant during the 1940's and 1950's. The autistic child's parents were responsible for the disorder according to the psychodynamic theories of etiology. In the 1960's, as learning theory became more prominent, researchers began developing treatment techniques based on the principles of operant learning theory. During the 1970's, the amount of research on behavioral treatment of autism continued to increase as researchers addressed more target behaviors and developed increasingly sophisticated behavior techniques. From 1980 to present, the area of behavioral treatment research has continued to expand, addressing a multitude of target behaviors. Such target behaviors include aberrant behaviors, social skills, language, daily living skills, and academic skills.

Since 1980, research on behavioral treatment of autistic children has become increasingly sophisticated. Researchers have addressed a multitude of target behaviors and developed more efficient methods to modify these behaviors. Yet, there is a need for continued research in this area. Researchers have found that many techniques that are effective with mentally retarded persons are equally appropriate for autistic persons. This

is particularly true in the areas of daily living skills and academic interventions (Matson et al., 1996).

As reported by Matson et al. (1996), generalization is one of the most difficult challenges facing teachers of autistic persons. Numerous studies have evaluated techniques for increasing generalization of newly learned behaviors. Studies have shown that generalization is enhanced when autistic subjects are trained in their natural environments. The use of peers, siblings, or parents in treatment also facilitates generalization, as the autistic child learns to emit target behavior around others who are part of the child's environment. Simpson (1995) reported that teachers and other professionals who are trained to work directly with students with autism are currently in short supply. These shortages can be expected to become even more acute in the 21st century. The significance of this problem cannot be overestimated; preparing qualified professionals to educate children and youth with autism is arguably the most significant challenge facing the field of autism

Definition of Autism

In his now classic paper, "Autistic Disturbances of Affective Contact", Kanner described a unique group of children who had failed to develop normal relationships, were upset by changes in their environments, and showed abnormalities in speech and language (Freeman, 1997). The "autism" or self-centerdness in these children was recognized as the primary deficit and the term's "autism" and "autistic" came to denote their disorder. Similar patterns were soon identified in children throughout the world. According to the Autism Society of America (http://www.autism-resources.com), in the 1930's and 1940's psychologists first observed a number of children with specific

symptoms and called it "early infantile autism". The term autism had been borrowed from psychologists who had already applied the word to describe people who try to escape from reality. Today, most people refer to it simply as "autism". Autism is a complex developmental disability that typically appears during the first three years of life. The result of a neurological disorder that affects the functioning of the brain, autism and its associated behaviors have been estimated to occur in as many as 1 in 500 individuals (Gillberg, 1997). The National Institute of Neurological Disorders and Stroke (1996) report that autism strikes males about four times as often as females, and has been found throughout the world in people of all racial and social backgrounds.

Autism impacts the normal development of the brain in the areas of social interaction and communication skills. Children and adults with autism typically have difficulties in verbal and non-verbal communication, social interactions, and leisure or play activities. The disorder makes it hard for individuals to communicate with others and relate to the outside world. In some cases, aggressive and/or self-injurious behavior may be present. Persons with autism exhibit repeated body movements (hand flapping, rocking), unusual responses to people or attachments to objects and resistance to changes in routines. Individuals may also experience sensitivities in the five senses of sight, hearing, touch, smell, and taste. (http://www.autism-society.org/autism.html). Currently, there is no known etiology of autism and therefore is no cure for it (Freeman, 1997).

What Causes Autism?

According to the National Institute of Neurological Disorders and Stroke (1999), there is no single cause. Researchers believe several genes, as well as environmental factors such as viruses or chemicals, contribute to the disorder. Studies of people with autism

have found abnormalities in several regions of the brain, including the cerebellum, amygdala, hippocampus, septum, and mamillary bodies. Neurons in these regions appear smaller than normal and have stunted nerve fibers, which may interfere with nerve signaling. These abnormalities suggest that autism results from disruption of normal brain development early in fetal development. Other studies suggest that people with autism have abnormalities of serotonin or other signaling molecules in the brain. While these findings are intriguing, they are preliminary and require further study. The early belief that parental practices are responsible for autism has now been disproved.

According to the National Institute of Neurological disorders and Stroke (1999), in a minority of cases, disorders such as fragile X syndrome, tuberous sclerosis, untreated phenylketonuria (PKU), and congenital rubella cause autistic behavior. Other disorders, including Tourette syndrome, learning disabilities, and attention deficit disorder, may often occur with autism but do not cause it. For reasons that are still unclear, about 20 to 30 percent of people with autism also develop epilepsy by the time they reach adulthood. While some people with schizophrenia may show some autistic-like behavior, their symptoms usually do not appear until the late teens or early adulthood. Most people with schizophrenia also have hallucinations and delusions, which are not found in autism.

Researchers from all over the world are devoting considerable time and energy into finding the answer to the critical question; what causes autism? Several outdated theories about the causes of autism have been proven to be false. Autism is not a mental illness. Children with autism are not unruly kids who chose not to behave. Bad parenting does not cause autism. Furthermore, no known psychological factors in the development of the child have been shown to cause autism (Autism Society of America, 1999).

Characteristics of People with Autism

According to the Autistic Society of America (1999), children with autism often appear relatively normal in their development until the age of 24-30 months. At this time, parents may notice specific delays in language, play, or social interaction. Any of these delays would not result in a diagnosis of autism by themselves. There are several developmental challenges associated with autism. The Autism Society of America give the following areas description of what people with autism are like, and how the above mentioned areas are affected:

Communication: language develops slowly or not at all; uses words without attaching the usual meaning to them; communicates with gestures instead of words; short attention span
Social Interaction: spends time alone rather than with others; shows little interest in making friends; less responsive to social cues such as eye contact or smiles
Sensory Impairment: may have sensitivities in the areas if sight, hearing, touch, smell, and taste to a greater or lesser degree
Play: lack of spontaneous or imaginative play; does not imitate others' actions; does not initiate pretend games
Behaviors: may be overactive or very passive; throws tantrums for no apparent reason; perseveres (shows an obsessive interest in a single item, idea, activity, or person); apparent lack of common sense; may show aggression to others or self; often has difficulty with changes in routine

Diagnostic Criteria

A standard reference is a diagnostic handbook now in its fourth edition, the Diagnostic and Statistical Manual of Mental Disorders, (DSM-IV). The *DSM-IV* lists criteria to be met for a specific diagnosis under the category of Autistic Disorder. Diagnosis is made when a specified number of characteristics listed in the *DSM-IV* are present. Diagnostic

evaluations are based on the presence of specific behaviors indicated by observation and through parent consultation, and should be made by an experienced, highly trained team. The diagnostic system for autism represented in DSM-IV can be operationalized to be applied effectively across groups with wide variation in age, intellectual level, and language skills (Lord, et al., 1997). The following is from the *DSM-IV* (1994).

Diagnostic Criteria For 299.00 Autistic Disorder

A. A total of six (or more) items from (1), (2), and (3), with at least two from (1), and one from each from (2) and (3)

1) qualitative impairment in social interaction, as manifested by at least two of the following:

a) marked impairments in the use of multiple nonverbal behaviors such as eye-to-eye gaze, facial expression, body posture, and gestures to regulate social interaction

b) failure to develop peer relationships appropriate to developmental level

c) a lack of spontaneous seeking to share enjoyment, interests, or achievement with other people, (e.g., by lack of showing, bringing, or pointing out objects of interest to other people)

d) lack of social or emotional reciprocity (note: not actively participating in simple social play or games, preferring solitary activities, or involving others in activities only as tools or "mechanical" aids)

2. qualitative impairments in communication as manifested by at least one of the following:

a) delay in, or total lack of, the development of spoken language (not accompanied by an attempt to compensate through alternative modes of communication such as gesture or mime)

b) in individuals with adequate speech, marked impairment in the ability to initiate or sustain a conversation with others

c) stereotyped and repetitive use of language or idiosyncratic language

d) lack of varied, spontaneous make-believe play or social imitative play appropriate to developmental level

3. restricted repetitive and stereotyped patterns of behavior, interests and activities, as manifested by at least two of the following:

a) encompassing preoccupation with one or more stereotyped and restricted patterns of interest that is abnormal either in intensity or focus

b) apparently inflexible adherence to specific, nonfunctional routines or rituals

c) stereotyped and repetitive motor mannerisms (e.g., hand or finger flapping or twisting, or complex whole-body movements)

d) persistent preoccupation with parts of objects

B. Delays or abnormal functioning in at least one of the following areas, with onset prior to age 3 years:

1) Social interaction

2) Language as used in social communication
3) Symbolic or imaginative play

C. The disturbance is not better accounted for by Rett's Disorder or Childhood Disintegrative Disorder

Other Types of Autism

The National Institute of Neurological Disorders and Stroke (1996) report that children with some symptoms of autism, but not enough to be diagnosed with the classical form of the disorder, are often diagnosed with ***Pervasive Developmental Disorder-not otherwise specified*** (PDD-NOS). According to the Autism Society of America (1999), individuals who fall under the Pervasive Developmental Disorder category in the DSM-IV exhibit commonalties in communication and social deficits but differ in terms of severity. The following is an outline of major points that distinguish the differences between the specific diagnoses used:

Autistic Disorder- impairments in social interaction, communication, and Imaginative play prior to age 3 years. Stereotyped behaviors, interests, and activities.

Asperger's Disorder-characterized by impairments in social interactions and the presence of restricted interests and activities, with no clinically significant general delay in language, and testing in the range of average to above average intelligence.

Pervasive Developmental Disorder-Not Otherwise Specified- (commonly referred to as atypical autism) a diagnosis of PDD-NOS can be made when a child does not meet the criteria for a specified diagnosis, but there is a severe and pervasive impairment in specified behaviors.

Rett's Disorder- a progressive disorder which, to date, has occurred only in girls. Period of normal development and then loss of previously acquired skills, loss of purposeful use of the hands replaced with repetitive hand movements beginning at the age of 1-4 years.

Childhood Disintegrative Disorder- characterized by normal development for at least the first 2 years, significant loss of previously acquired skills.

Current Agreed upon Facts

According to Freeman (1997), current definitions of autism are based on assumptions and facts that may contradict some long-held beliefs about autism and may require updated thinking. Freeman (1997) reports that it is now agreed upon that:

> *Autism is a clinical (behaviorally defined) syndrome.* This is because objective biomedical markers common to all cases have not yet been identified. Like all syndromes (e.g., pneumonia, epilepsy, hypertension, diabetes), autism is assumed to be composed of many subtypes, each with different etiologies and possible treatments. Anything that can cause damage to the central nervous system could cause damage to the parts of the brain that then produce these behaviors we identify as autistic.
>
> *Autism is a spectrum disorder.* The concept of a spectrum or continuum of symptoms are enormously complex. Although the expression of symptoms tanges from severe to mild, the concept of a continuum of symptoms is not simple. The manifestation of social and other impairments vary widely in all combinations of subtype and severity. Although most subtypes have not been named as separate syndromes, some have, such as Rett. The mistake most often made in diagnosis is the failure to recognize all the possible combinations of symptoms that can occur.
>
> *Autism is a developmental diagnosis.* As with all diagnoses made in childhood, expression of symptoms varies with both the age and developmental level of the person affected. Thus autism is lifelong. Although symptoms fluctuate, abate, change, and some may even disappear; once autistic, always autistic. Autistic persons have a normal life expectancy and the majority require lifelong support systems due to their developmental handicaps and continuing symptomatology.
>
> *Autism is a retrospective diagnosis.* While symptoms can appear as early as the first month of life, some children display normal development until 12-24 months of age. Since most children are not seen until later and some persons are not seen until they are adults, it is not possible to make a differential diagnosis until a careful developmental history is obtained. This history should cover all aspects of development and/or a person's life course.
>
> *Autism is ubiquitous.* It occurs in all parts of the world, in all races, and in all

types of families. No social or psychological characteristics of parents of families have proven to be associated with autism. Boys are affected more often than girls by a ratio of four or five to one and some families have more than one autistic child.

Autism frequently occurs in association with other syndromes. The most common co-occurring condition is mental retardation. For example, approximately 50% of all autistic patients also have the syndrome of mental retardation. This is because the brain pathology that produces the symptoms of autism also affects cognitive development and symbol processing. Epilepsy, motor incoordination, fragile X, and severe allergies are other frequent concurrent syndromes. As persons with autism develop into adolescence, many become anxious or depressed as a result of social pressures. There is no reason to believe that having autism precludes other forms of psychopathology.

There is no known cure; children with autism improve with proper intervention. In the past a diagnosis of autism was considered to be a "death sentence". The assumption was that it was a hopeless condition and children did not get better. It is now recognized that people with autism not only improve but can and do lead happy productive lives with proper intervention.

Families with an Autistic Child

The parents of an autistic child bear a heavy burden. They are frustrated by the child's inability to communicate impulsiveness, emotional unresponsiveness, self-destructive behavior, and eating and toiling problems. In the past, when parents were sometimes blamed for the problems, their exhaustion, confusion, and disappointment could be compounded with guilt. Some parents find it difficult to accept the diagnosis and constantly look for other explanations. Many cope well enough, but almost all can benefit from some guidance and services, including counseling or supportive psychotherapy. An important resource for parents is the National Society for Autistic Children, a mutual group founded in 1965 which provides information and referral services and supports initiatives in research, education, and treatment (Harvard Mental Health Letter, 1997, part 2).

A child with a severe handicap can have a profound impact on the child's family. Not only parents are affected but also other siblings and the relationships among family members. This can start when the parents and family members first realize there is a problem and can continue indefinitely. Moreover, the effects on a family are not simply unidementional or linear, but multifaceted and reciprocal, altering the total family system. A child with autism is less identifiable as handicapped by: physical appearance, has more of a language deficit, is much less socially responsive, has more behavior problems, and shows more unevenness in intellectual skills than a child with a child that has another type of developmental disability, such as Down Syndrome.

Sanders and Morgan (1997), compared mothers of Down syndrome children to mothers of autistic children and found that mothers of autistic children were (a) more upset and disappointed about their child, (b) more concerned about their child's dependency, (c) more concerned about the effect of their child on the integration of the rest of the family, (d) more called upon to handle physical disability, (e) more concerned about vocational handicaps and lack of available activities to keep their child busy and (f) more aware of personality problems in their child.

Infants with Autism

Research into impaired social communication of children with autism has mostly been conducted with school-age children, adolescents, or young adults. However, theoretical accounts of the development of autism emphasize the role of various social, cognitive,

and affective factors in infancy (Baron-Cohen, 1995). According to Baron-Cohen (1995), previous research with school-age children and adolescents has demonstrated autism-specific impairments in empathy, pretend play, joint attention, and imitation; these impairments have been linked to later problems in social understanding and reciprocal social communication that is characteristic of autism. These theoretical accounts also claim a crucial for these abilities in normal social and communicative development. Studying infancy with autism may inform understanding of abnormal development in autism (Charman, Baron-Cohen, Swettenham, Cox, Baird, and Drew, 1997). In the following, Charman et al. summarized these four abilities:

1) *Interest in and empathic response to others:* Children with autism show poor coordination of affective response. They are less likely than are children in the control group to combine smiles with eye contact, less likely to smile in response to smiles from their mothers, and are impaired in their empathic responses. Although we would expect very young children with autism to show the same impairments, studying the responses of infants with autism to displays of feigned distress may also demonstrate whether at an early age they notice the distress at all and, whether the lack of empathic response found in autism is secondary to a primary deficit in perception of the emotional displays of others.
2) *Pretend Play:* In unstructured or free-play conditions, children with autism produce significantly less pretend play, but intact functional play, compared with chronological or mental age-matched comparison groups. Under structured, or prompted, conditioned, some studies have found that children with autism produced fewer functional and symbolic acts than did developmentally delayed controls, whereas in at least one study, children with autism produced as many functional and symbolic acts as did controls. Studying the spontaneous and prompted play of infants with autism may show whether aspects of play that develop earlier-such as functional play-are also impaired in younger children with autism.
3) *Joint attention:* there is substantial experimental evidence for impairments in both the production and the comprehension of joint attention behaviors in children with autism. Many studies have shown, for example, that although children with autism are able to use gestures to request objects or to engage in social action routines, they nevertheless do not use gestures to share interest in objects or their properties. Studying the response of infants with autism to ambiguous objects and ambiguous actions may show under what conditions such a joint attention deficit is evident in younger children.
4) *Imitation:* Although some studies have demonstrated impaired imitation-in particular of complex and novel sequences of actions-in children with autism, other studies have

found that school-age children with autism are able to produce basic-level imitation of gestures, actions on objects, and facial expressions. Studying the imitation skills of infants with autism may show whether based-level imitation is impaired in younger children with autism.

What to Do after Diagnosis

Once a child has been diagnosed with autism, the most often asked question by parents is "What do I do now"? It is important to remember that children with autism are individuals. As a result, a wide variety of treatment approaches may be necessary. Freeman (1997) states that treatment programs should never lose site of the long-term goal, which is to improve the outcome for persons with autism. Outcome is defined by quality of life indicators, that is, empowerment to live, work, learn, be mobile, and have fun in settings where everyone else does these activities, in natural settings with families, friends, and coworkers. Any evaluation of a treatment program must focus on outcome and not program specifics.

We must always be aware that as yet no one has the"magic bullet" that cures autism. Therefore, any treatment approach must be viewed as one of several options available. It is important to evaluate the pros and cons of each approach and examine how it would facilitate reaching the long-term goal of independent functioning. While each new treatment may represent one of several options for persons with autism, only one treatment has stood the test of time and has been shown to be effective for every autistic person, that is, structural educational programs geared to developmental level of functioning and teaches functional social skills (Campbell, Schopler, Cueva, and Hollin,

1996). Other treatments might be appropriate at different points in an autistic person's life.

Families, advocates, public agencies, and legislators must come together to develop a framework that encourages the emergence of innovative strategies in best practices. However, there must be assurances that a long-term, proactive plan is carefully defined to study new methodologies. Only through candid discussion, longitudinal analysis, and opportunities for collaboration among sectors of the early identification community can an atmosphere of trust become the cornerstone in a climate of clinical indeterminacy (Feinberg and Beyer, 1998). Mainstream treatment consists of early, intensive education for parents, focusing on behavior and communication disorders. A highly structured environment with intensive individual instruction should be encouraged (Andolsek, 1998).

Guidelines for Evaluating Treatment Programs

According to Freeman (1997), the following are general guidelines for evaluating various treatment procedures:

Approach any new treatment with hopeful skepticism. Remember the goal of treatment should be to help the person with autism become a fully functioning member of society.

Beware of any programs or techniques that is said to be appropriate for every person with autism.

Beware of any program that thwarts individualization and potentially results in harmful program decisions.

Be aware that any treatment represents one or several options for a person with autism.

Be aware that treatment should always depend on individual assessment information that points to it as an appropriate choice for a particular child.

Be aware that no new treatment should be implemented until its proponents can specify assessment procedures necessary to determine whether it will be appropriate for an individual with autism.

Be aware that debate over use of various techniques are often reduced to superficial arguments over who is right, moral, ethical and who is a true advocate for the children. This can lead to results that are directly opposite to those intended including impedes to maximizing programs.

Be aware that often new treatments have not been validated scientifically.

The most important thing to remember when attempting to evaluate any treatment program is that every child with autism is an individual and what is appropriate for one child may or may not be appropriate for another. However, we must approach any new treatment with hopeful skepticism. As yet, the specific cause of autism is not known and therefore cannot be cured. The goal of any treatment must be to help a person with autism become a fully functioning member of society. Ant treatment approach that does not aid in this long-term goal is not appropriate.

Social Interaction for People with Autism

An understanding of the importance of social interaction for people with autism has developed over time. The focus on social integration is due largely to an accumulating body of behavior-analytic research empirically demonstrating that (a) social interaction can be taught and learned, (b) social participation in typical settings can be successfully

accomplished, and (c) substantial positive outcomes accrue from the occurrence of points "a" and "b" (Kennedy and Shukla, 1995). Developmental researchers have made advances in assessing the social irregularities associated with autism. Areas of interest have included social gaze, affective communication, and joint attention (McGee, Feldman, and Morrier, 1997). An often forgotten starting point for analyzing the social behavior of people with autism was to ascertain the basic psychological nature of the disability. In the late 1950's when scientific attention began to focus on understanding people with autism, a number of competing theories regarding the underlying nature of the disorder were postulated (Kennedy and Shukla, 1995).

Early Identification

Research has begun to indicate that highly structured; intensive early intervention may lead to significant developmental gains for many children with autism. One important observation has been that many preschool children with autism who are presented with intensive behavioral treatment, for a substantial period of time, exhibit significant IQ gains (Mundy and Crowson, 1997). Building on research that begun in the early 1960's, investigators in the mid-1980's began reporting that many children with autism who received behavioral treatment during their preschool years benefited greatly (Smith, Eikeseth, Klevstrand, and Lovaas). Although there is a general agreement about the importance of the preschool years and early identification, the field is still in its infancy. Much more information is needed about what kinds of early identification programs are

useful and what cognitive and developmental and social/emotional skills they might impact. Appropriate expectations for the outcomes of these programs are still uncertain with some suggesting total cures while others promise more modest gains (Mesibov, 1997).

What is Early Identification?

The Early Intervention Project (EIP) is a treatment program for autism that was developed by Dr. Ivar Lovaas. The EIP was described by Lovaas as a behavioral-intervention project that begun in 1970 that sought to maximize behavioral treatment gains by autistic children during most of their waking hours for many years (Gresham and MacMillan, 1997). As reported by Gresham and MacMillan (1997), the EIP claims to produce recovery from autism in about one half of the cases and to greatly reduce its severity in another 42% of the cases. With several independent groups reporting the positive effects of early intensive intervention, the methodological skepticism that met the initial reports of these effects may be allayed to some degree. Nevertheless, improvements in the methods employed in treatment studies may still be desirable in order to attain a more precise understanding of the effectiveness of early identification with children with autism (Mundy and Crowson, 1997).

Dr. Ivar Lovaas, who developed the intensive early intervention method, wrote a letter regarding what is considered appropriate therapeutic intervention for children with autism. Dr. Lovaas reported (http://fox.nstn.ca/zacktam/FEATbc/INFOSOURCES.html)

that a consensus has emerged among scientific researchers and practitioners that appropriate treatment contains the following elements:

1. *A behavioral emphasis.* This involves not only imposing structure and rewarding appropriate behaviors when they occur, but also applying some more technical interventions such as conducting discrete trials, and producing shifts in stimulus control.
2. *Family participation.* Parents and other family members should participate actively in teaching their child. Without such participants, gains made in professional settings such as special education programs, clinics, or hospitals rarely lead to improved functioning in the home.
3. *One-to-one instruction.* For approximately the first six months of treatment, instruction should be one-to-one rather than in a group because autistic children at this stage learn only in one-on-one situations. This training need not be administered by degreed professionals, but can be just as effective if delivered by people who have been thoroughly trained in the behavioral treatment of autistic children, such as undergraduate students or family members.
4. *Integration.* When a child is ready to enter a group situation, the group should be "normal" or "average" as possible. Autistic children perform much better when integrated with normal children than when placed with other autistic children. In the presence of other autistic children, any social behavior that they may have developed usually disappears within minutes, presumably because it is not reciprocated. Mere exposure to normal children, however, is not sufficient. The autistic children require explicit instruction from trained tutors on how to interact with their peers.

5. *Comprehensiveness.* Autistic children initially need to be taught virtually everything. They have few appropriate behaviors, and new behaviors have to be taught one by one. This is because teaching one behavior rarely leads to the emergence of other behaviors that were not directly taught. For example, teaching language skills does not immediately lead to the emergence of other language skills, such as pronouns.
6. *Intensity.* Perhaps as a corollary for the need for comprehensiveness, an intervention requires a very large number of hours, about 40 hour a week. Ten hours a week is inadequate, as is twenty hours. The majority of the 40 hours, at least during the first six months of the intervention, should consist of remediating speech and language deficits. Later, this time may be divided between promoting peer integration and continuing to remediate speech and language deficits.

The Lovaas Institute for Early Intervention

The Lovaas Institute for Early Intervention is a research based Institute that specializes in teaching pre-school age children with autism, pervasive developmental disorders, and related developmental disabilities. The intervention program was developed in the psychology department at UCLA under the direct supervision of Dr. O. Ivar Lovaas, Ph.D. It is based on extensive clinical experience and more than 30 years of scientific research. The program is comprehensive-aimed at enhancing the language, social/play, pre-academic and independent living skills of young children so that they may take better advantage of opportunities in their communities and may require less professional attention as they grow older (http://www.Lovaas.com). The UCLA program

offers services to children who have received a diagnosis of autism or pervasive developmental disorder and are under 5 years of age at intake. Most of their outcome research has focused on children with a diagnosis of autism and an age under 3.5 years at intake (Smith and Lovaas, 1998).

According to the Lovaas Institute for Early Identification (1999), it is assumed that children with autism have failed to understand what well-meaning adults have been able to communicate to their typically developing children. As a consequence, such children have encountered continuous failure in learning situations and understandably react to such frustrations with tantrums and other attempts to escape or avoid future failures. Every effort is therefore made to construct a teaching situation so as to maximize the child's success and minimize failures. This is accomplished by simplifying requests, prompting the child to make the correct response and providing abundant reinforcement for socially appropriate behaviors. At the same time, failures are minimized. Ensuring the child's motivation to participate in the learning process is a key element in behavioral interventions. The Lovaas Institute does not employ aversive interventions.

The Lovaas Institute (1999) reports that their intervention is based on shaping behavior through reinforcement of successive approximations, prompting and fading procedures, and use of positive reinforces that are functional (i.e., serve the intent of increasing behavior). Examples of such reinforces are small bites of food, play with a favorite toy, look at a favorite book, and social rewards such as verbal praise, tickles, hugs, and "rides through the air". As intervention progresses, food and other artificial reinforces are replaced, whenever possible, by more, social, and everyday reinforces. The intervention is structured so those "positive" behaviors are maximized through

prompting and positive reinforcement. High rates of aggressive and/or self-stimulatory behaviors are reduced by being ignored and by teaching alternate, more socially acceptable forms of behavior. The intervention progresses very gradually from teaching beginning self-help and elementary receptive language skills, to teaching nonverbal and verbal imitation skills, and establishing the beginnings of appropriate toy play. Discrimination learning plays a dominant part in all programs. Once the child has mastered the basis tasks, the second stage of the intervention emphasizes the teaching of expressive and early abstract language and interactive play with peers. In more advanced stages of the intervention, the child is taught at home and at school (1) early academic tasks such as beginning reading, writing, and arithmetic, (2) socialization skills, (3) cause-effect relationships, and (4) to learn by observing other children learn.

The majority of teaching is done in the child's home by a team of 3-5 undergraduate student-aides. The student aides have successfully completed a course in Learning Theory and a practicum course in behavior modification techniques. Many of these therapists received their initial training from the U.C.L.A Clinic for the Behavioral Treatment of Children under the direct supervision of Dr. Ivar Lovaas (http://www.cardhq.com/thrapst.html). The undergraduate student-aides are supervised by a senior aide, and undergraduate student whose previous teaching experience has shown him or her to be exceptionally talented. The senior aid assists in training new student-aides. The children's progress is monitored each week in a meeting with the treatment team, parents, child and Institute staff. Dr. Lovaas directs this meeting and the child's case supervisor, a graduate student or senior staff member with several years of experience at the Institute. The case supervisor directs the child's programming and

supervises the student aides assigned to that child. Parents are well informed about all aspects of the services, and are in a position to encourage some procedures and to terminate others. They also extend the intervention to the child's everyday environment.

The Lovaas Institute (1999) reports that the child is taught in a one-to-one situation for 5-7 hours per day, 5-7 days per week (approximately 30-40 hours per week). The Lovaas Institute makes the intensity of their program manageable for the child by dividing the day into sessions. A session usually lasts about 2-3 hours, during which a number of play breaks are includes. Typically, the therapists work on a specific task for 2-5 minutes and then have a short break (1-2 minutes). They take a longer break (10-20 minutes) every hour, and go outside, play a game, or have a snack. The breaks provide the child with time away from structured teaching, and allows for generalization of new skills to the child's everyday environment. The play breaks are calculated into the total number of hours per week. The teaching schedule is adjusted to the needs of the individual child and may for example, include time for an afternoon nap.

The Lovaas Institute (1999) reports that the child needs a period of 6-12 months of one-to-one home-based teaching on order to learn basic self-help, language and play skills before he or she can take advantage of a group or classroom situation. At this stage the teaching procedures become less structured as the child progresses and are generalized to the child's school and everyday environment. The team from the Lovaas Institute chooses the school, regular education or special education, based on the child's level of functioning. Student aides accompany the child to school, facilitate the transition to the classroom routines and encourage interaction with other children. School time is increased gradually over time from as little as 30 minutes a day initially, to full time (i.e.,

2 to 3 hours per day), and the student aide is carefully faded out. School hours are included in the total 30-40 hours per week. Parents, teachers, and Institute staff maintain close supervision of the child's progress in school so that success can be maximized and the chances of the child being ostracized are minimized. According to federal law, assignment to special education at a chronological age of 3 years has to be determined by an Individual Education Program (IEP) team, which consists of professionals, qualified to decide an appropriate placement. This step reduces potential bias of Institute staff in influencing a particular placement over another, which could adversely affect the child.

According to the Loovas Institute (1999) there are many potential benefits of intensive behavioral intervention. They state that with early intervention, sizable minorities of children with autism and pervasive developmental disorders and related developmental disorders have been able to achieve normal educational and intellectual functioning by 7 years of age. These children have been mainstreamed into regular education classrooms and have advanced successfully through the school system without additional assistance. They show significant increases in intellectual functioning and perform within normal ranges on standardized tests of intelligence. They also appear indistinguishable from their peers in measures of social and emotional functioning. For the children who do not achieve normal functioning, sizable decreases in inappropriate behaviors and acquisition of basic language behaviors are most often achieved. These children become more active members of their families and are usually able to learn in special education classrooms. The Institute claims that their best predictor at the present time of long-term treatment outcomes is the child's responsiveness to treatment during the first 4-6 months of the

intervention. The children who learn fairly quickly during this time usually continue to progress at the same rate throughout the intervention.

The Lovaas Institute currently provides services for children who are up to 48 months of age at intake and who display developmental delays in one or more of the following areas: cognitive performance, language development, social skills, self-help skills, and/or behavioral functioning. They also offer services for children between 48 and 60 months of age at intake who obtain a score of 50 or above on the Wechsler Preschool and Primary Scale of Intelligence-Revised (WPPSI-R) or on the Stanford-Binet Intelligence Scale. They do not have personnel qualified to teach children diagnosed with any additional major medical condition such as blindness, significant hearing loss, uncontrolled seizures, Rett's Disorder and/or severe delays in motor development.

Lovaas' Research Experiment

Smith and Lovaas (1998) report that in 1987, Lovaas reported outcomes achieved by three groups of children with autism who began treatment prior to 4 years of age. The experimental group of 19 children received an average of 40 hours per week of one-to-one treatment for 2 years or more, based on the UCLA model. Control group 1, with 19 children, received 10 hours per week or less of this same treatment. Control group 2, consisting of 21 children, had no contact with the project and instead received special education services in the local public schools. Both control groups were comparable to the experimental group children before treatment started.

By age 7, the experimental group showed an average IQ increase of 20 points (from 63 at intake to 83 at follow up). In contrast, control groups 1 and 2 evinced little change,

consistent with data from other studies on preschool children with autism who received special education and other services available in the community. At a further follow-up conducted when the children averaged 12 years of age, the experimental group had maintained their IQ gains and also showed a sizable advantage over the control groups on tests of adaptive behavior and personality.

Of note, the IQ increase of 20 points observed in the experimental group resulted from only 9 of the 19 children in that group. The remaining 10 children showed little change in IQ. A particularly rigorous follow-up study of the nine "best outcome" children, conducted at a mean age of 13 years, showed that eight of the nine could be classified as normally functioning in the sense that they passed regular classes in the public school, scored within the typical range on IQ tests and standardized tests of adaptive behavior and personality, and scored well in ratings by the examiners.

Evaluation Criteria

One of the most well-defined characteristics of programs and interventions for students with autism has been the never-ending search for agents or methods, proven or not, that purportedly restore a child with autism to normalcy, or that accelerate development of skills, knowledge, and overall progress (Simpson, 1995). Since autism is a heterogeneous disorder with multiple etiologies, alternative treatments may prove helpful for some children at various points in their lives. However, no treatment should be

implemented until assessment procedures necessary to determine whether it is appropriate have been specifies. All too often, proponents of alternative treatments advocate that every child with autism should have a given treatment. As a result, the debate over uses of various techniques is often reduced to superficial arguments over who is right, moral, ethical, and who is the true advocate for the child. This often leads to controversy and to results opposite to those intended (Freeman, 1997).

According to Freeman (1997), once the principles for evaluating alternative treatments are considered, it is important to ask the following five questions:

1. *Will the treatment result in harm to the child?* This may seem obvious, but harm to a child is not only physical. Harm can also result from failure to provide exposure to the program that would maximize potential.
2. *Is the treatment developmentally appropriate for the child?* It is critical that a child's developmental level be factored into any treatment plan. We must be sure that we are not demanding that the child with autism do things that we would ask a typical child to do. We must also examine what is appropriate across the life span as a person with autism develops. What is appropriate at age 2 is not an appropriate intervention at age 18.
3. *How will failure of the treatment affect my child and family?* Often timid families spend all their resources in search of the "magic bullet". As resources are spent, families are often in crisis. It is important to view autism as a family problem and to integrate the child into the family. Autism must be viewed as a lifelong problem. If all resources are exhausted when a child is young, families are unable to cope, as the child grows older.

4. *Has the treatment been validated scientifically?* This may not be an important consideration for some families. However, it is crucial that parents and professionals be aware of the scientific validity of particular treatments. Some families may want to try out experimental treatments, so, it is incumbent upon professionals to educate them regarding scientific validity. Often people expect the miracle professionals must always temper these expectations.
5. *How will the treatment be integrated into the child's current program?* This is perhaps the most important question. We must not become so infatuated with new unproven treatments that we fail to provide appropriate intervention (i.e., individual structured educational programs geared to developmental level of functioning). There is now ample evidence that when intervention focuses on functional, vocational, and life skills, persons with autism improve.

Critics of Lovaas' Treatment for Autism

According to the Families for Early Autism Treatment of British Columbia (FEAT of B.C.) (1999), The Lovaas method of autism treatment is mandatory. The report this because of the following:

- Lovaas behavioral treatment is the only scientifically recognize method for effective treatment of children with autism. Early identification often results in remarkable improvement.

- All children improve, some to the point of full recovery from the condition, if treatment is early and intensive.
- The cost of "Lovaas" treatment is offset because fewer parents give up their autistic children to social service agencies-the government saves foster care ($30,000+ savings per year).
- Long-term government cost of cures for autistic people is dramatically reduced since many children grow to be sufficiently independent to live in the community (less need for institutions).
- Fewer segregated classrooms are needed because most children treated early with Lovaas therapy treatment can be included in regular classrooms.
- Young children treated can lead full and productive lives. Many attain capabilities necessary to overcome autism

One strength of the design of Intensive Early Identification lies in the participation of parents and is founded on the knowledge that parents are the child's first teachers and the home is the natural learning environment for very young children. Children enter the program when they are two and three years old and are immersed into learning the language and social skills that most children who are not disabled with autism learn naturally from their environments. All methods used are positive (www.csaac.org/iei.htm).

Feinberg and Beyer (1998) have reported that a confluence of variables have propelled to national significance the issue of whether the intensive behavioral therapy advocated by Dr. Ivar Lovaas and his colleagues should be available on demand to young children with autism. These variables include the following:

1. *An increase in the incidence and prevalence of young children with autism.* While traditional estimates indicated that autism occurred in about 2 to 4 children out of every 10,000 births, recent discussions suggest a more accurate incidence rate of 1 in 700 births with an additional 2 in 1,000 births diagnosed with pervasive developmental disorders. The incidence of autism increased markedly on the east Coast during the last 7 years, and it is starting to rise on the West Coast as well. Whether the reports of such an increase are due to the development of better diagnostic tools, the greater awareness of the clinical characteristics of autism, or an actual increase in the absolute number of children with this profile remains unclear.
2. *No consensus on the most successful methodology for clinical intervention.* Table 1 summarizes the main treatment programs for children with autism as outlined by Dawson and osterling. They note the difficulties in comparing programs directly since outcome measures differ, and inclusion philosophies vary from one school district to another.
3. *Age of diagnosis coincides with the upper age limit of Part H of the Individuals with Disabilities Education Act (IDEA) mandate.* The diagnosis of autism is increasingly likely to be made between the ages of 2 and 3. Since Part H of the IDEA is now an operative entitlement for children with special needs between birth and 3 throughout the country, the provision of services to young children with autism raises questions regarding the parameters of this relatively new federal entitlement and, specifically, whether service delivery systems should provide Lovaas on demand.

Table 1. Models of Intervention for young children with autism

Model	Philosophy	Strategies	Family component	Frequency/ Intensity
Douglas Developmental Disabilities Center (Rutgers University)	Applied behavior analysis	3-year program; begins with 1:1 intervention; moves to classroom-based intervention to foster skill generalization	Bimonthly home visits; bimonthly team meetings; parent and sibling support groups	25 hours/week
Health Sciences Center (University of Colorado)	Use of play to promote emotional, cognitive, and communicative development	Peer imitation in preschool setting; occupational and psychotherapy offered	Weekly 1-hour meetings with psychologist or psychiatrist; monthly parent support groups	22.5 hours/week
LEAP (Learning Experiences . . . An Alternative Program for Preschoolers & Parents)	Peer modeling in an inclusive preschool setting with behavioral training to parents	Peer modeling in an inclusive preschool setting with behavioral training to parents	Monthly parent support group; in-home additional services	15 hours/week
May Institute	Applied behavior analysis; in-home and then school-based	Six months of in-home visitation then skill generalization in an integrated classroom	Monthly parent support groups; direct parental instruction	15 then 30 hours/week
Princeton Child Development Center	Applied behavior analysis and behavioral intervention	Targeting of basic skills then generalization	Biweekly home visits to promote carry-over of skills	27.5 hours/week
Treatment & Education of Autistic & Communication Handicapped Children (TEACHH) (University of North Carolina)	Structure of the environment to promote skill acquisition; facilitation of functional independence	Introduction of skills in 1:1 method and gradual generalization over time	Family support available	Daily program; intensity varies
Walden Preschool (Emory School of Medicine)	Focus on language and social development using incidental teaching	Inclusive preschool setting with teaching zones in which teachers oversee instruction	Home visitation to team meetings	30 hours/week
Young Autism Program (Dr. Lovaas/University of California at Los Angeles)	Applied behavior analysis	3-year program: 1st year, 1:1 discrete trial learning; 2nd year, emphasis on peer interaction; 3rd year, gradual inclusion	Extensive parent training	40 hours/week

Source: Feinberg, E., and Beyer, J. Creating Public Policy in a Climate of Clinical Indeterminacy: Lovaas as the Case Example du Jour

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4. *The shift to a family-centered decision-making paradigm.* The new emphasis on professional-parent collaboration makes it somewhat bewildering for state and local early intervention systems to formulate a response to a family who insists on Lovaas intervention for its children with autism. Increasingly, decision-makers are attempting to work with families to formulate Individualized Family Service Plans (IFSPs) that focus on family preferences and priorities, yet clinicians may question the strategies in the Lovaas approach and may prefer utilizing other techniques for intervention. The Lovaas issue rekindles the fear that decision makers initially experienced when the concept of family-centered care was advanced in the 1980s: should the preferences of the family for a particular intervention strategy be considered the driving force in decision making when this preference proves costly or is not mainstream of conventional therapy?
5. *Stable or decreasing fiscal resources.* Requests for provisions of highly labor-intensive and expensive Lovaas services come at a time of stable or diminishing fiscal resources and increasing overall demand for services.
6. *An increase in hearings and litigation around appropriate methodologies for children with autism.* The number of Lovaas disputes brought to the courts more than doubled in 1996, and attorneys expect further litigation in the next several years. Consequently, hearing officers and judges must consider the clinical efficacy of particular models of intervention despite uncertain clinical outcomes. The legacy of the litigation will create perceptions of clinical efficacy shaped by the ramifications of legal advocacy and due process rather than by a dispassionate analysis of the merits of particular therapies. The National Autistic Society is not

in complete support of the Lovaas treatment because each child has different needs (McCurry, 1998).

Parents of children with developmental disabilities are understandably desperate to find something that works and will resolve the myriad difficulties these children present. In the case of the Early Identification Program (EIP) by Lovaas, the public school systems are being asked by many parents of children with autism to provide this program in the hope and belief that it will result in their children's ultimately functioning normally-as claimed by the EIP. For years now, the field of developmental disabilities has had to contend with controversial therapies that are claimed by their proponents to work, but for which there is either inadequate or conflicting empirical evidence of effectiveness. It is not uncommon for developers of partially successful treatments to greatly overstate claims of their efficacy. Hooked on Phonics is a case in point. This program was sued successfully by the Federal Trade Commission because its marketers were unable to substantiate the claims made for it using competent and reliable scientific evidence (Gresham and MacMillan, 1997).

Resources to Obtain More Information

The National Institute of Neurological Disorders and Stroke (1999), have listen on their web site the following resources that enables people to get more information about autism:

National Institute of Mental Health
5600 Fishers Lane, Room 7C-01
Rockville, Maryland 20857
(301) 443-4513

National Institute of Child Health and Human Development
Building 31, Room 2A32
Bethesda, Maryland 20892-2350
(301) 496-5133

Autism Society of America
7910 Woodmont Avenue
Suite #650
Bethesda, Maryland 20814
(301) 657-0881
(800) 3AUTISM

Autism Research Institute
4182 Adams Avenue
San Diego, California 92116
(619) 281-7165

The New Jersey Center for Outreach and Services for the Autism Community, Inc.
(COSAC)
1450 Parkside Avenue, Suite 22
Ewing, New Jersey 08638
(609) 883-8100
(800) 4-AUTISM

National Autism Hotline
C/O Autism Services center
P.O. Box 507
605 Ninth Street
Prichard Building
Huntington, West Virginia 25710-0507
(304) 525-8014

National Organization for Rare Disorders, Inc. (NORD)
P.O. Box 8923
New Fairfield, Connecticut 06812-8923
(203) 746-6518
(800) 999-6673

National Institute of Neurological Disorders and Stroke
Office of Communications and Public Liaison
P.O. Box 5801
Bethesda, Maryland 20824
(301) 496-5751
(800) 352-9424

Discussion

The disorder of autism is a very complex disability facing I in 500 individuals (Autism Society of America, 1999). People with autism show symptoms of impaired social interaction, problems with verbal and nonverbal communication and imagination, and unusual or severely limited activities and interests (National Institute of Neurological Disorders and Stroke, 1999). There is no single cause or cure. Researchers believe several genes as well as certain environmental factors contribute to the disorder. There are many treatments that claim to be effective for people with autism (Simpson, 1995). Along with these treatments, there are many skeptics and critics of each.

One such treatment method is the "Lovaas Early Intervention Program". This intervention program was developed under the direction of Dr. Ivar Lovaas, Ph.D. Lovaas is a comprehensive program aimed at enhancing the language, social/play, academic, and independent living skills of young children with autism. Therapists who have successfully completed a course in Learning Theory and a practicum course in behavior modification techniques provide the majority of the teaching to the autistic child. The child is taught in a one-to-one situation for 5-7 hours per day, 5-7 days per week. The Lovaas treatment claims that all children improve if the treatment is early and intensive (Lovaas Institute for Early Identification, 1999).

Feinberg and Beyer (1998) have reported that a confluence of variables have propelled to national significance the issue of whether the intensive behavioral therapy advocated by Dr. Ivar Lovaas and his colleagues should be available on demand to young children with autism. 9These variables include: an increase in the incidence and prevalence of

young children with autism, no consensus on the most successful methodology for clinical intervention, age of diagnosis coincides with the upper age limit of Part H of the Individuals with Disabilities Education Act mandate, the shift to a family-centered decision making paradigm, stable or decreasing fiscal resources, and an increase in hearings and litigation around appropriate methodologies for children with autism. The debate over use of controversial interventions within the field of autism is unique in that, at least in some instances, their success is based on the user's "belief" in a certain method (Simpson, 1995). The National Autistic Society is not in complete support of the Lovaas treatment because each child has different needs (McCurry, 1998). The Lovaas Institute (1999) claims that with early identification, sizable minorities of children with autism have been able to achieve normal educational and intellectual functioning by 7 years of age. Foe children who do not achieve normal functioning, sizable decreases in inappropriate behaviors and acquisition of basic language behaviors are most often achieved.

As is the case with other areas of education, programs for children and youth will feel the effects of reform and restructuring in the coming years. It is also likely that many fundamental beliefs and strategies used to educate students with autism will be changed and/or challenged. In anticipation of these changes, educators are urged to consider three issues that are currently having a significant effect on the education of children and youth with autism: (a) a willingness to accept and rely upon unproven and controversial interventions, (b) the advisability of full-time placement of students with autism in general education settings, and (c) the preparation of adequately trained personnel to educate students with autism (Simpson, 1995). Full inclusion, a fundamental feature of

many special education reform initiatives, is believed by some to be the next logical step in securing appropriate and legally required services for children and youth with disabilities, including those with autism (Simpson, 1995).

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